

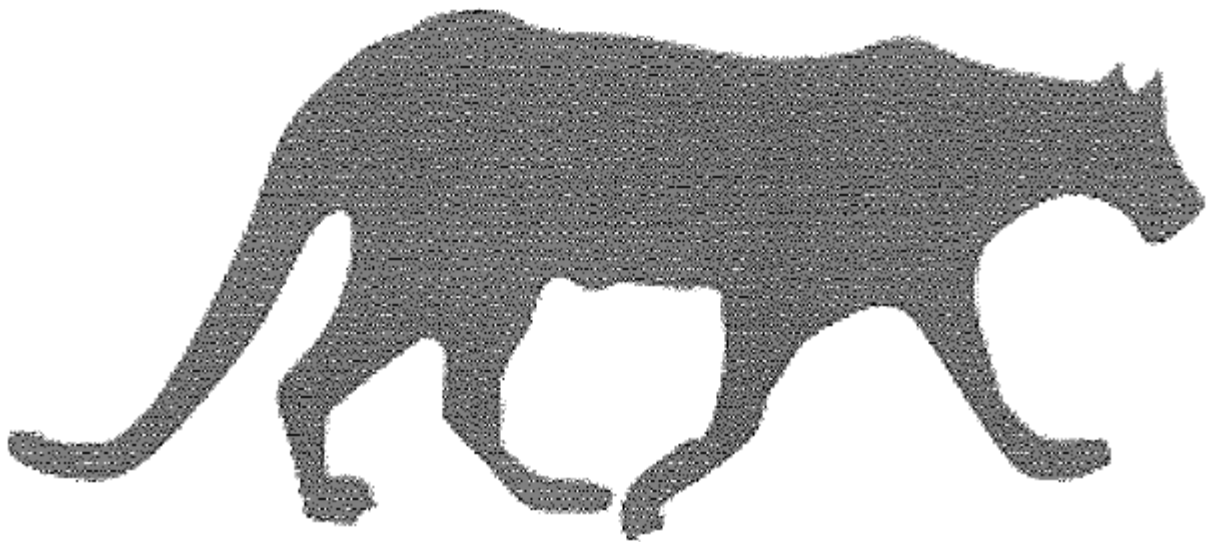


MUCHIN
COLLEGE PREP

A CAMPUS OF NOBLE STREET CHARTER SCHOOL

Honors Geometry

Summer Homework



Noble Efforts Change Lives. Be Noble.

Honors Geometry Summer Homework Overview

Assignment Overview

If you are receiving this homework, welcome to Honors Geometry! Every three weeks you will have a 15 point assignment comprised of ten multiple choice questions (1 point each) and one writing prompt (5 points). During the first week of school we will have a 20 point quiz over the material you completed this summer. TAKE THESE ASSIGNMENTS VERY SERIOUSLY- that is 80 points awarded in the first week of school!

Summer Homework 1 (Due Monday, June 29th, 2015)

<http://tinyurl.com/MCP-SummerGeoHW-1>

Summer Homework 2 (Due Monday, July 29th, 2015)

<http://tinyurl.com/MCP-SummerGeoHW-2>

Summer Homework 3 (Due Monday August 3rd, 2015)

<http://tinyurl.com/MCP-SummerGeoHW-3>

Summer Homework 4 (Due Monday August 24th, 2015)

<http://tinyurl.com/MCP-SummerGeoHW-4>

Use the following instructions for all extended response questions:

- Answers must be **one to two paragraphs**, written in **complete sentences**.
- If you are solving a problem, make your strategy clear to the reader.
- Using examples and describing pictures are better than not.
- All sources must be cited.

Technology Issues

Since you have three weeks to complete each problem set, you will have plenty of time to figure out any technology/internet/computer issues that may arise. If you know that you will not be able to complete these assignments on a computer, you may do your work by hand and mail it to me at Muchin. The letter needs to be postmarked by the due date in order to be considered on time. You can also email Ms. Mitrovich at rmitrovich@noblenetwork.org if any technology issues occur. If I do not hear from you, it will be assumed that everything is working properly.

Solving these problems will require problem solving skills. The work and the process you are taking to solve these problems is more important than the correct answer. Thoroughly explain the steps you are taking to ensure you get full points. Please do not hesitate to reach out if you have questions about expectations.

Best of Luck,

Ms. Mitrovich

Honors Geometry Summer Homework
Assignment #1

Due: Monday, June 29th, 2015

Name: _____ TP: _____

Submit all answers <http://tinyurl.com/MCP-SummerGeoHW-1> by the deadline listed above.

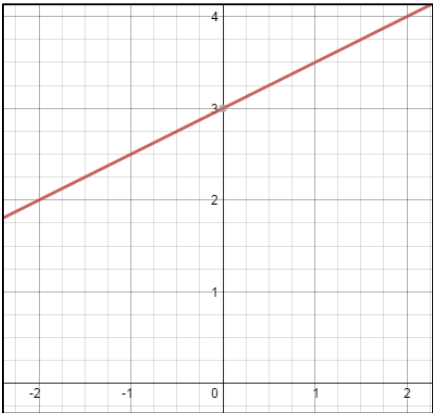
Exponent Rules:

1. 2^3 is equivalent to: A. $2 \cdot 3$ B. $2 \cdot 2$ C. $2 \div 3$ D. $2 \cdot 2 \cdot 2$ E. $2 + 2 + 2$	2. $4x^2$ is equivalent to: A. $4 \cdot 4 \cdot x \cdot x$ B. $4 \cdot x \cdot x$ C. $4 \cdot 2 \cdot x \cdot x$ D. $4 \cdot 2 \cdot x$ E. $4 \cdot x$
3. Simplify: $3^2 \cdot 3^3$ A. 3^5 B. 3^{-1} C. 3^6 D. $6 \cdot 9$ E. $5 \cdot 6$	4. Simplify: $\frac{3^2}{3^3}$ A. $\frac{1}{3}$ B. 3 C. 3^5 D. $\frac{1}{3^6}$ E. 3^6
5. Simplify: $x^8x^2y^2$ A. x^6y^2 B. $x^{16}y^2$ C. xy^{12} D. x^8 E. $x^{10}y^2$	6. Simplify: $\frac{x^8y}{x^2}$ A. $\frac{x^2}{y}$ B. $\frac{x^6}{y}$ C. x^6y D. $\frac{y}{x^6}$ E. 6

Parallel and Perpendicular Lines:

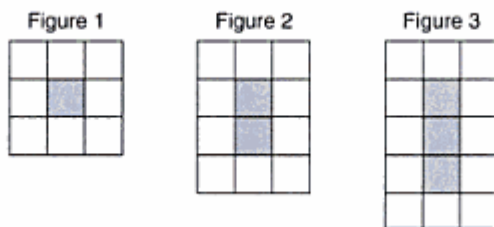
Use the following information to answer questions 7 & 8:

In the standard (x,y) coordinate plane, Line m is defined as, $y = \frac{1}{2}x + 5$.

7. Which of the following lines will be parallel to Line m ? A. $y = -\frac{1}{2}x + 5$ B. $y = -3x + 6$ C. $y = 5x + 5$ D. $y = \frac{1}{2}x + 4$ E. $y = -2x + 4$	8. Which of the following lines will be perpendicular to Line m ? A. $y = -\frac{1}{2}x + 5$ B. $y = -3x + 6$ C. $y = 5x + 5$ D. $y = \frac{1}{2}x + 4$ E. $y = -2x + 4$
9. What is the slope of a line that is parallel to the line shown?  A. 3 B. 2 C. $\frac{1}{2}$ D. $-\frac{1}{2}$ E. -2	10. What is the slope of a line that is perpendicular to $5x + 15y = 20$? A. 3 B. $-\frac{1}{3}$ C. $-\frac{1}{5}$ D. -3 E. -5

Word Problem: Use complete sentences to complete the following.

11. A worker placed white tiles around black tiles in the pattern shown in the three figures below:



- Based on this pattern, how many white tiles would be needed for 4 black tiles?
- Based on this pattern, how many tiles would be needed for 50 black tiles?
- Based on this pattern, explain how you could find the number of white tiles needed for any number, n , of black tiles. Show and explain your work.

Name: _____ TP: _____

Submit all answers <http://tinyurl.com/MCP-SummerGeoHW-2> by the deadline listed above.

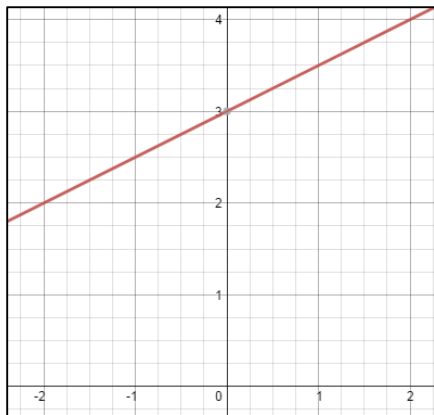
Exponent Rules:

<p>1. $(2^3)^2$ is equivalent to:</p> <p>A. $(2 \cdot 3) \cdot 2$</p> <p>B. $(2 \cdot 2 \cdot 2)(2 \cdot 2 \cdot 2)$</p> <p>C. $(2 \div 3) \cdot 2$</p> <p>D. $(2 \cdot 2 \cdot 2)$</p> <p>E. $(2 + 2 + 2)(2 + 2 + 2)$</p>	<p>2. $(4x)^2$ is equivalent to:</p> <p>A. $4 \cdot 4 \cdot x \cdot x$</p> <p>B. $4 \cdot x \cdot x$</p> <p>C. $4 \cdot 2 \cdot x \cdot x$</p> <p>D. $4 \cdot 2 \cdot x$</p> <p>E. $4 \cdot x$</p>
<p>3. $\left(\frac{x^2}{y}\right)^3$ is equivalent to:</p> <p>A. $\frac{(x \cdot x) + (x \cdot x) + (x \cdot x)}{y \cdot y \cdot y}$</p> <p>B. $\frac{3(x \cdot x)}{3y}$</p> <p>C. $\frac{x \cdot x \cdot x \cdot x}{y \cdot y \cdot y}$</p> <p>D. $\frac{(x \cdot x)(x \cdot x)(x \cdot x)}{y \cdot y \cdot y}$</p> <p>E. $\frac{x \cdot x \cdot x \cdot x}{y}$</p>	<p>4. $(x + y)^2$ is equivalent to:</p> <p>A. $2x + 2y$</p> <p>B. $x^2 + y^2$</p> <p>C. $x^2 + 2xy + y^2$</p> <p>D. $x^2 + xy + y^2$</p> <p>E. $2xy$</p>
<p>5. Simplify: $\left(\frac{x^3y^2}{y}\right)^3$</p> <p>A. $3x^3y$</p> <p>B. x^6y^3</p> <p>C. x^9y^3</p> <p>D. x^6y^5</p> <p>E. x^9y^7</p>	<p>6. Which of the following is equivalent to:</p> <p>$\left(\frac{x+y}{y}\right)^2$</p> <p>A. $\frac{x^2+2xy+y^2}{y^2}$</p> <p>B. $x^2 + 2xy$</p> <p>C. x^2</p> <p>D. $\frac{x^2+y^2}{y^2}$</p> <p>E. $\frac{2x+2y}{2y}$</p>

Parallel and Perpendicular Lines:

<p>7. In the standard (x,y) coordinate plane, line l_1 has an equation of $x + 5y = 6$. If line l_2 is perpendicular to l_1, what is the slope?</p> <p>A. $-\frac{1}{5}$</p> <p>B. $\frac{5}{6}$</p> <p>C. 1</p> <p>D. $\frac{6}{5}$</p> <p>E. 5</p>	<p>8. Which of the following values of m represents the slope of the line $8x - 7y = -1$?</p> <p>A. $\frac{7}{8}$</p> <p>B. $-\frac{1}{8}$</p> <p>C. $\frac{8}{7}$</p> <p>D. $-\frac{8}{7}$</p> <p>E. 8</p>
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9. If this line were shifted up two units, what would the slope of the line be?



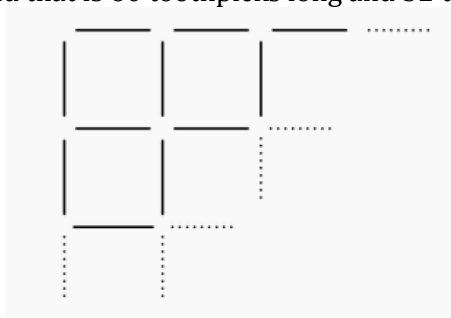
- A. 3
B. 2
C. $\frac{3}{2}$
D. $\frac{1}{2}$
E. $-\frac{1}{2}$

10. What is the slope of a line that is parallel to $5x + 15y = 20$?

- A. 3
B. $-\frac{1}{3}$
C. $-\frac{1}{5}$
D. -3
E. -5

Word Problem: Use complete sentences to complete the following.

11. Toothpicks are used to make a grid that is 60 toothpicks long and 32 toothpicks wide.



- a. How many toothpicks are used all together? How did you determine the total number needed?
b. If the dimensions were changed to 58 toothpicks long and 28 toothpicks wide. How many toothpicks would you have leftover? Explain how you determined your answer.

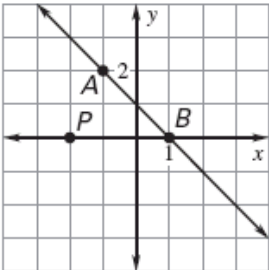
Name: _____ TP: _____

Submit all answers <http://tinyurl.com/MCP-SummerGeoHW-3> by the deadline listed above.

Exponent Rules:

<p>1. 2^{-1} is equivalent to:</p> <p>A. 2</p> <p>B. 1</p> <p>C. 0</p> <p>D. $\frac{1}{2}$</p> <p>E. $-\frac{1}{2}$</p>	<p>2. $(4x)^0$ is equivalent to:</p> <p>A. $4 \cdot x$</p> <p>B. $4 \cdot x \cdot x$</p> <p>C. 4</p> <p>D. 1</p> <p>E. 0</p>
<p>3. Simplify: $\frac{5y^2x^0}{3(xy^2)^0}$</p> <p>A. 0</p> <p>B. $\frac{5}{3}$</p> <p>C. $\frac{5y^2}{3}$</p> <p>D. $\frac{5xy^2}{3}$</p> <p>E. $\frac{25y^2}{3}$</p>	<p>4. $(3x + 1)^2$ is equivalent to:</p> <p>A. $9x^2 + 1$</p> <p>B. $6x + 2$</p> <p>C. $3x^2 + 1$</p> <p>D. $3x^2 + 6x + 1$</p> <p>E. $9x^2 + 6x + 1$</p>
<p>5. Simplify: $-5a^32b^9a^0a^6$</p> <p>A. $-5a^9b^9$</p> <p>B. $-5a^{18}b^9$</p> <p>C. $-10a^9b^9$</p> <p>D. $-10b^9$</p> <p>E. $-10a^{18}b^9$</p>	<p>6. Simplify: $\frac{9m^5p^6p^2}{27mp^0m^2}$</p> <p>A. $\frac{m^8p^{10}}{3}$</p> <p>B. $3m^2p^8$</p> <p>C. $\frac{m^4p^{12}}{3}$</p> <p>D. $\frac{m^3p^{12}}{3}$</p> <p>E. 3</p>

Parallel and Perpendicular Lines:

<p>7. Which of the following values of m represents a shallower slope than the line $3x - 1y = -1$?</p> <p>A. -11</p> <p>B. -8</p> <p>C. $\frac{1}{5}$</p> <p>D. $\frac{10}{3}$</p> <p>E. 5</p>	<p>8. Line m passes through the point (4, 3) in the standard (x, y) coordinate plane, and is perpendicular to the line described by the equation $5x + 4y = 30$. Which of the following is the equation for Line m?</p> <p>A. $y = \frac{4}{5}x - \frac{1}{5}$</p> <p>B. $y = -\frac{4}{5}x + \frac{15}{16}$</p> <p>C. $y = \frac{4}{5}x + 3$</p> <p>D. $y = \frac{5}{4}x - \frac{1}{5}$</p> <p>E. $y = \frac{4}{5}x - \frac{15}{2}$</p>
<p>9. If Point A were translated three points in the positive x-directions and 2 points in the negative y-direction, Point A would be located at which of the following points?</p>  <p>A. (-1, 1)</p> <p>B. (1, 2)</p> <p>C. (-3, 5)</p> <p>D. (2, 0)</p> <p>E. (4, -2)</p>	<p>10. What is the equation of the line that passes through Point P (3, 8) and Point R (3, -10)?</p> <p>A. $y = -\frac{18}{2}x + 7$</p> <p>B. $x = 3$</p> <p>C. $y = x - 10$</p> <p>D. $y = 3$</p> <p>E. $y = 3x + 3$</p>

Word Problem: Use complete sentences to complete the following.

11. Study the following number pattern:

$x, 4, 10, 16, 22, y \dots$

- a. What are the values for x and y . How did you determine them?
- b. Create an equation that represents each term of the pattern. Explain the equation.
- c. If the m^{th} term is 112, find m .

**Honors Geometry Summer Homework
Assignment #4**

Due: Monday, August 24th, 2015

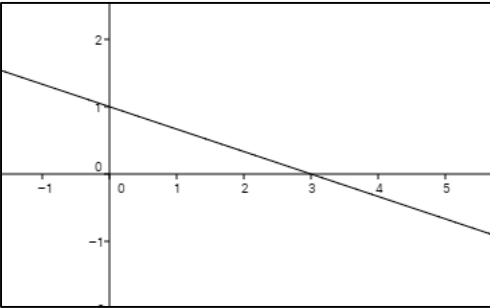
Name: _____ TP: _____

Submit all answers <http://tinyurl.com/MCP-SummerGeoHW-4> by the deadline listed above.

Exponent Rules:

<p>1. $2y^3 \cdot 3xy^2 \cdot 6xy^2$ is equivalent to:</p> <p>A. $11x^2y^7$ B. $11x^2y^{12}$ C. $36x^2y^7$ D. $36xy^{12}$ E. $36x^2y^{12}$</p>	<p>2. Simplify the expression: $\frac{18(a^2b)^6 \cdot b^2 \cdot a^0}{6a^4b}$</p> <p>A. $\frac{3b^{11}}{a}$ B. $6a^8b^7$ C. $3a^8b^7$ D. $3a^4b^{11}$ E. $6a^4b^7$</p>
<p>3. Simplify the expression: $\frac{2zy^6 \cdot x^2 \cdot 6y^2}{yz^4}$</p> <p>A. $\frac{8x^2y^{11}}{z^3}$ B. $\frac{8x^2y^9}{z^5}$ C. $\frac{12x^2y^9}{z^5}$ D. $\frac{12x^2y^7}{z^3}$ E. $12x^2y^7z^3$</p>	<p>4. Simplify the expression: $\frac{2zy^6 \cdot x^2 \cdot 6y^2}{yz^4}$</p> <p>A. $\frac{8x^2y^{11}}{z^3}$ B. $\frac{8x^2y^9}{z^5}$ C. $\frac{12x^2y^9}{z^5}$ D. $\frac{12x^2y^7}{z^3}$ E. $12x^2y^7z^3$</p>
<p>5. What value of n would make $3^n \cdot 3^n = 3^{25}$ a true statement?</p> <p>A. 25 B. 12.5 C. 5 D. 1 E. 0</p>	<p>6. Simplify the expression: $\frac{(a^5b^{-4}c)^{-3}}{a^{-5}b}$</p> <p>A. $\frac{b^{15}}{c^3}$ B. $a^{10}b^{11}c$ C. $\frac{a^2}{b^7c^3}$ D. $\frac{a^7}{b^8c^3}$ E. $\frac{b^{11}}{a^{10}c^3}$</p>

Parallel and Perpendicular Lines:

<p>7. What is the equation of the line that passes through Point P (3,7) and Point R (5, 7)?</p> <p>A. $y = \frac{4}{7}x + 7$ B. $y = 7$ C. $y = x + 7$ D. $y = 3x + 5$ E. Undefined</p>	<p>8. The line $16x - 2y = -4$ is perpendicular to which of the following lines?</p> <p>A. $x - 8y = 16$ B. $8x + 1y = 16$ C. $y = \frac{1}{8}x + 1$ D. $x + 8y = 16$ E. $x - 8y = 1$</p>
<p>9. Which of the equations describes the graph below?</p>  <p>A. $-3x + 3y = 3$ B. $x + y = 3$ C. $3x + 3y = 3$ D. $-x - 3y = -3$ E. $-x + 3y = 3$</p>	<p>10. Point A is located at (5,6), if point A were translated six points in the negative x-direction and 3 points in the positive y-direction, Point A would be located at which of the following points?</p> <p>A. (-1, 6) B. (9, 0) C. (-1, 8) D. (0, 9) E. (-1, 9)</p>

Word Problem: Use complete sentences to complete the following.

11. The Lincoln Park Zoo has a number of two-legged birds and a number of four-legged mammals. On one visit to the zoo Ms. Mitrovich counted 200 heads and 522 legs.
- Create an equation to represent the total number of heads. Explain your equations and the variables you use.
 - Create an equation to represent the total number of legs. Explain your equations and the variables you use.
 - How many of the animals that Ms. Mitrovich counted were two-legged birds?